PRICE $5.00

10563

POWER SUPPLY

VOLTAGE REGULATED
DC POWER SUPPLY

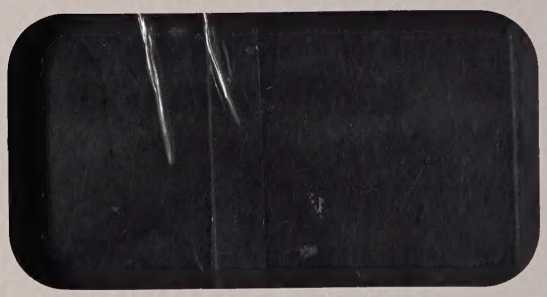
MODEL ABC 7.5-2, (-2M)

SERIAL NO. E-04279

INSTRUCTION MANUAL

kepco inc.®

131-38 SANFORD AVENUE • FLUSHING 52, N. Y.
Area Code 212 IN 1-7000 • TWX # NY 4-5196



INSTRUCTION MANUAL

VOLTAGE REGULATED
DC POWER SUPPLY

MODEL ABC 7.5-2, (-2M)

SERIAL NO. E.04279.....

TABLE OF CONTENTS

Section		Page
1.	SPECIFICATIONS AND DESCRIPTION	1-1
	Electrical and Physical Specifications	1-1
	Terminals and Controls	1-2
	Special Features	1-3
2.	INSTALLATION AND OPERATING INSTRUCTIONS	2-1
	Installation	2-1
	Standard Operation Procedures	2-2
	Special Operation Procedures	2-4

Copyright 1961 by Kepco, Inc., New York

STANDARD POLICY COVERING REPRODUCTION AND USE OF TECHNICAL DATA FOR KEPCO MANUFACTURED EQUIPMENT

The technical data submitted, including manuals, parts information, and mechanical and electrical drawings, is furnished solely for the purpose of effecting maintenance and/or repairs to the apparatus therein described and the purchaser or the Government shall not reproduce, use, or disclose the said technical data, in whole or in part, for any other purpose. Such technical data shall not be used for promotional procurement, development or manufacturing purposes, nor shall the purchaser or the Government permit the reproduction, use, or disclosure of any part of said technical data by others. The purchaser shall notify the Government of the purchaser's limited right in the use of said technical data for aforesaid purposes. In the event that any part of this technical data is used by anyone for other than the above authorized purposes, the purchaser will give all assistance possible for the prosecution of action against any unauthorized use thereof.

INSTRUCTION MANUAL MODEL ABC 7.5-2M

VOLTAGE REGULATED POWER SUPPLY

SECTION 1, SPECIFICATIONS AND DESCRIPTION

1-1 ELECTRICAL AND PHYSICAL SPECIFICATIONS

....DC OUTPUT: 0-7.5 volts, at 0-2 amperes.

....AC INPUT: 105-125 volts, 50-440 cps, 0.5 ampere.

....LINE REGULATION: 0.05% for 105-125 volts change in input line voltage, at any output voltage setting.

....LOAD REGULATION: 0.05% or 1 mv whichever is greater, for a change in load between no-load and full-load, at any output voltage setting. Specified for load connected to the rear DC output terminals.

....RECOVERY TIME: 50 microseconds.

....RIPPLE AND NOISE: Less than 0.5 mv, rms.

....STABILITY: Less than 0.05% or 3 mv whichever is greater, over a period of 8 hours at constant ambient temperature.

....AMBIENT OPERATING TEMPERATURE: -20C to +50C.

....TEMPERATURE COEFFICIENT: 0.05% per degree C.

....OUTPUT IMPEDANCE: Less than 0.002 ohm, DC to 1 KC; less than 0.02 ohm, 1 KC to 100 KC.

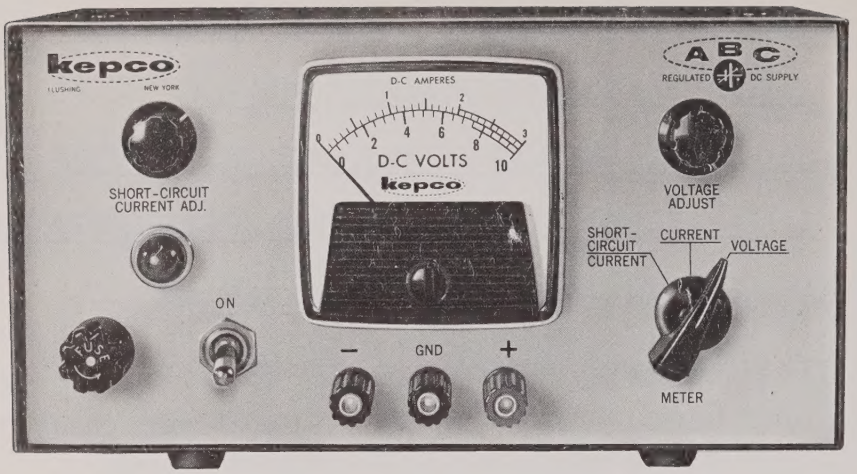
....DIMENSIONS: Height 4-1/4"; width 8-5/32"; depth 9-5/8".

....WEIGHT: 11 pounds.

....MOUNTING: Portable, for bench use. Optional Rack Panel Adapters are available to mount one unit (Adapter RA-5), or two units side by side (Adapter RA-4), on a standard 19" rack.

....METER: Dual function: 0-10 V DC; 0-3 A DC.
(Unmetered Model, designated by omission of "M" suffix on Model number, does not include Meter and Meter Switch.)

....COLOR: Kepco Standard Hammertone Gray. Brushed Satin Finish Panel.



1-2 TERMINALS AND CONTROLS - (on Front Panel)

....AC INPUT: Toggle switch turns unit On. Pilot light on panel indicates when unit is On. AC input Fuse accessible on front panel.

....SHORT CIRCUIT CURRENT ADJUST: Control for setting the adjustable current limiting.

....OUTPUT TERMINALS: Combination binding posts for connecting to DC Output and Ground at front panel.

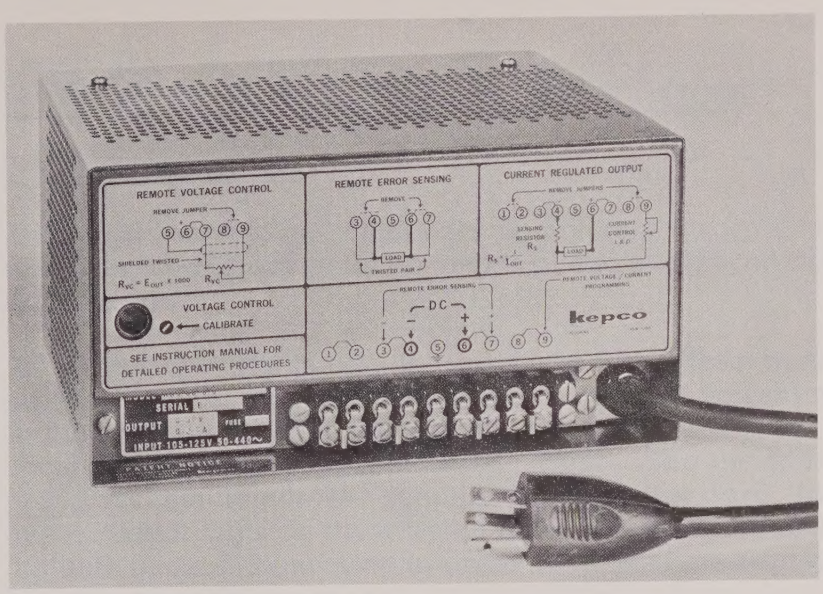
....VOLTAGE ADJUST: Continuously variable control for setting the output voltage.

....METER FUNCTION SWITCH: On metered models only. Three position switch connects the panel meter to read either output voltage or output current. Third position (momentary) applies a short-circuit to the output, and connects the meter for setting the adjustable current limiting.

(On back of unit)

....VOLTAGE CONTROL CALIBRATE: Screwdriver control for calibrating the output voltage to the internal control or to an external programming control.

....OUTPUT TERMINAL STRIP: Nine-terminal barrier type strip contains terminals for DC Output, Ground, Error Sensing, and Remote Voltage/Current Programming. The terminal identification, and connecting diagrams for standard and special operation, are displayed on the back panel of the unit.



1-3 SPECIAL FEATURES

REMOTE ERROR SENSING. - Remote Error Sensing operation compensates for voltage drops, of up to 1 v, in load connecting leads, enabling specified regulation to be maintained across a remotely connected load.

OVERLOAD PROTECTION. - Output current limits automatically during overload, up to full short-circuit, at pre-set maximum equal to approximately 135% of rated maximum of Supply.

ADJUSTABLE CURRENT LIMITING. - Adjustable current limiting, separate from the factory-set maximum, can be adjusted with front panel control to limit the output current at any value from approximately 10-135% of the rated maximum current of Supply.

REMOTE VOLTAGE CONTROL. - Output voltage can be programmed or remotely controlled by an externally connected resistance, at a control-resistance to output-voltage ratio of 1000 ohms per volt.

CURRENT REGULATED OPERATION. - The output can be converted to constant current operation, without requiring internal modification to the unit, by connecting two resistors to external terminals.

PANEL METER. - On metered model, dual function meter may be switched to read either output voltage or current. Meter and function switch also serve when setting the adjustable short-circuit current limiting.

Digitized by the Internet Archive
in 2025

https://archive.org/details/manualsplus_08399

SECTION 2
INSTALLATION AND OPERATING INSTRUCTIONS

2-1 INSTALLATION

....This ABC Power Supply has been completely inspected and tested at the factory prior to packing, and is shipped ready for operation.

....AC POWER. - The Supply is equipped with a three-wire safety line cord and polarized plug. The third (green) wire in the cord, connected to the grounding pin on the plug, is connected to the case and chassis. When using the two-prong receptacle adapter supplied with the line cord, the green pigtail wire on the adapter must be connected to a suitable ground connection in order to ground the Supply.

....ISOLATION. - The DC Output terminals are isolated from the AC power line. They are also isolated internally from ground, permitting either positive or negative terminal to be grounded externally.

....SERIES CONNECTED UNITS. - Two or more ABC Model Power Supplies may be connected in series, up to a maximum of 300 volts between either output terminal and ground (chassis). The output current must not be permitted to exceed the maximum rated current of the series connected unit having the lowest rated maximum output current.

....COOLING. - The unit is designed to have efficient convection cooling through its grilled top and bottom panels. The rubber feet on the bottom of the unit are intended to keep the bottom clear to allow air to circulate into the unit. The top panel should be kept free from any obstructions, such as books, papers, etc., that might interfere with the air circulation. If the unit is placed standing on top of other equipment, or if it is installed on a rack or panel, care should be taken not to locate it near and above equipment that may be generating a high local ambient temperature.

....DC OUTPUT CONNECTIONS. - The Supply is shipped with four jumper links in place between terminals (1)-(2), (3)-(4), (6)-(7), and (8)-(9), on the terminal strip on the rear. These links must all be in place for standard operation. The DC output may be taken either from the binding posts on the front panel, or from terminals (4) and (6) on the terminal strip on the rear. With links (3)-(4) and (6)-(7) in place, optimum specified regulation will apply to the voltage at the rear output terminals. The voltage at the load will be diminished by any voltage drops in the conductors between these terminals and the load. (See Remote Error Sensing.)

Note: The terminal screws on the terminal strip on the rear of the unit should always be tight. Loose wire connections or jumper links can cause the unit to function improperly. Be sure also to restore jumper links where required when changing applications.

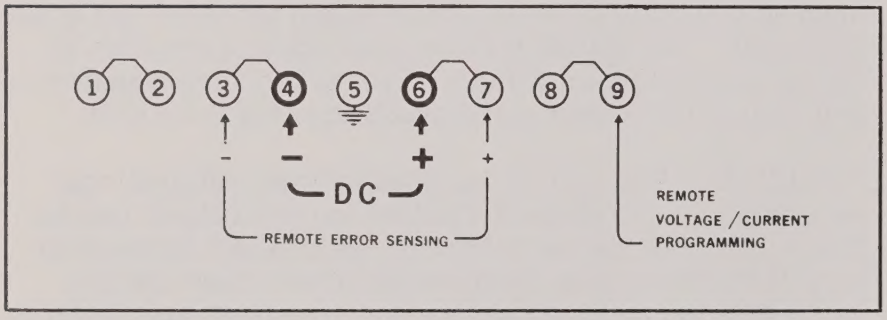


Fig. 2-1 Connecting Terminals on Back of Supply

....VOLTAGE CONTROL. - The output voltage is set by the Voltage Adjust control on the front panel. This control may be at any setting when the Supply is turned On or Off. When adjusting the voltage while the Supply is operating with a load connected, the adjustable current limiting action can affect the maximum voltage to which the output can be set. Check the setting of the adjustable current limiting before setting the output voltage under load.

SHORT CIRCUIT CURRENT ADJUST. - The Short Circuit Current Adjust control on the front panel adjusts the output current limiting circuit and sets the maximum current that can flow when the output is short-circuited.

Short-circuit current can be set to any value from 10% to 135% of rated maximum current. Limiting action begins when the output current goes above 75% of the current at which it is set; therefore, it should be set at least one-third higher than the expected operating current. When lower settings of short-circuit current are not specifically required, the control may be left at its maximum position (clockwise). At this setting, the Supply can be operated at any current up to its rated maximum, without it going into limiting; overload protection will still be present for current in excess of rated maximum

Current limiting is set by adjusting the Short-Circuit Current Adjust control, while actually short-circuiting the output and reading short-circuit current on an ammeter. The metered ABC models are equipped with a panel meter and short-circuiting switch to facilitate making this setting.

Procedure. - Metered Model:

1. While holding the Meter switch in the Short Circuit Current position, adjust the Short Circuit Current Adj control on the front panel to the desired short-circuit current. This current will indicate on the panel meter while the switch is being held in this position.

NOTE: If the output voltage is set at or near the zero-voltage setting, there may not be sufficient voltage to develop the short-circuit current. This can be checked by turning the Short Circuit Current Adj to maximum and noting the short-circuit current; it should read at least one-third higher than rated maximum current for the Supply. If it is considerably below this value, indicating too low an output voltage setting, turn up the voltage until current one-third above maximum can be obtained; then adjust for the desired short-circuit current. Reset the output voltage.

Procedure. - Unmetered Model:

1. Set the Voltage Adjust control on the front panel to the zero-voltage setting, fully counter-clockwise. Connect an ammeter, capable of reading at least one and one-half times the Supply's rated maximum, across the DC output terminals, either front or rear.

2. Turn the Short Circuit Current Adj control on the front panel to maximum, fully clockwise. Advance the Voltage Adjust control until a current reading is obtained on the ammeter; continue advancing the Voltage Adjust until the current no longer increases, indicating the voltage is set high enough for short-circuit current.

3 Adjust the Short Circuit Current Adj control to the desired short-circuit current setting. Reset the output voltage.

2-3 SPECIAL OPERATION PROCEDURES

....REMOTE ERROR SENSING. - Terminals (3) and (7) on the terminal strip at the back of the unit are the error-sensing input to the regulating amplifier. Normally, these terminals are connected to the DC output terminals (4) and (6) respectively, by jumper links, providing error-sensing of the voltage directly at the rear output terminals.

Depending on the length and size of the leads connected to the load, and the current they will carry, the voltage drops in these leads may become appreciable for the intended application. In such a case the error-sensing may be connected to sense the voltage directly at the load instead of at the output terminals. Remote error-sensing will compensate for any voltage drops in the load leads and thus maintain specified regulation of the voltage directly across the load.

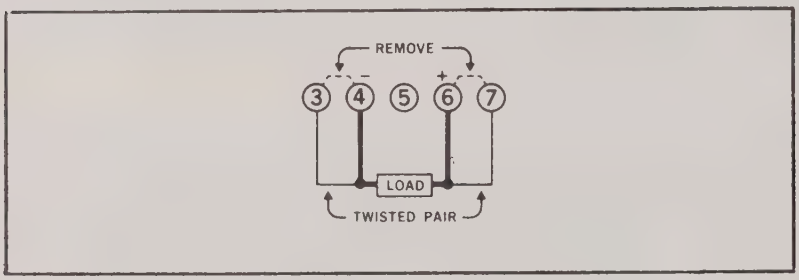


Fig. 2-2 Connections for Remote Error Sensing

Procedure:

1. Remove jumper links (3)-(4) and (6)-(7). Connect the load to either the front or rear DC output terminals. The voltage drops in the load current carrying leads should be kept to a low value by using wire of the largest practical size for the intended application.

2. Using a twisted-pair wire separate from the main load wires, connect terminals (3) to the negative connection at the load, and (7) to the positive connection at the load. Although these leads will not carry any load current, it is recommended that they be at least #16 wire.

3. Check the Short-Circuit Current, which must be set to at least 135% of the intended operating current. If adjustable current limiting is to be used, set the Short Circuit Current after the load and error-sensing connections are in place.

4. If it is found that the Short Circuit Current cannot be set to at least 35% above the intended operating current, the Maximum Current Adjustment may have to be increased. (See "Maximum Current Adjustment," page 2-8.)

a. With the load and error sensing connections in place, increase the Maximum Current Adjust setting, while reading Short Circuit Current, until the 135% value can be obtained.

b. Be sure to restore the Maximum Current Adjust setting before resuming normal operation without remote error sensing.

....REMOTE VOLTAGE CONTROL. - The output voltage may be controlled or programmed independently of the front panel control, by connecting an external control resistance (R_{VC}) to terminals (7)-(9) on the rear of the unit. The external control may be fixed, stepped, or continuously variable, and may be located remotely from the Power Supply. The value of R_{VC} should be determined by the control ratio 1000 ohms per volt. For example: 5000 ohms resistance in R_{VC} will set the output voltage to 5 volts. (See Voltage Control Calibration.)

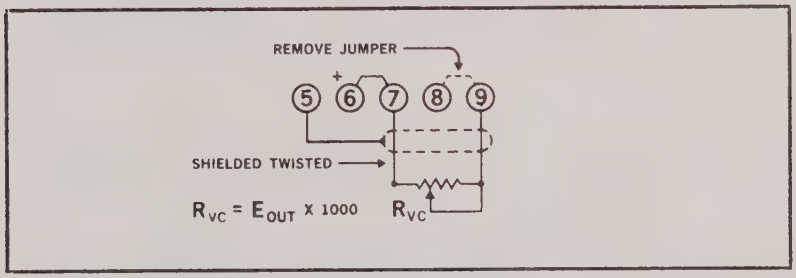


Fig. 2-3 Connections for Remote Voltage Control

Procedure:

1. Remove jumper link (8)-(9). This disconnects the internal Voltage Adjust control on the front panel from the circuit.

2. Using shielded, twisted-pair wire, connect the external voltage control to terminals (7) and (9) on the rear of the unit. Connect the shield to ground, (5).

3. When stepping or switching fixed resistances for this application, the external voltage control circuit must not be permitted to open during switching. Use switching contacts which bridge or short during transfer.

....VOLTAGE CONTROL CALIBRATION. - The voltage control circuit, is designed to control the output voltage over its range at a control-resistance to output-voltage ratio of 1000 ohms per volt. This ratio may be checked, and adjusted if necessary by means of a screwdriver adjustment labelled Voltage Control Calibrate, accessible at the back of the Supply.

Procedure:

1. To calibrate the front panel Voltage Adjust control, set it to its maximum (clockwise) position, and adjust the Voltage Control Calibrate to obtain the exact maximum rated output voltage of the Supply.

2. To calibrate an external or remote Voltage Control, adjust the Voltage Control Calibrate to obtain an output voltage equal in value to the resistance of the external control divided by 1000.

....CURRENT REGULATED OPERATION. - The output may be connected to obtain regulated output current instead of regulated voltage. In voltage regulated operation, the output current changes as the load changes in order to maintain a constant output voltage. To maintain constant current, the voltage across the output must change as the load changes.

A current sensing resistor, (R_S), whose value is chosen to develop 1 volt drop across it at the intended operating current, is connected externally in series with the load. The voltage across the sensing resistor is fed back to the programming input through a 1000 ohm current control resistor, (R_C). The regulating system in the Supply will maintain the current through the load constant by controlling the output voltage on the basis of the sensed voltage across R_S.

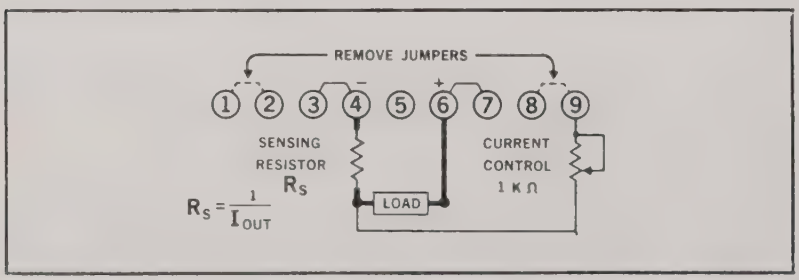


Fig. 2-4 Connections for Current Regulated Operation

Procedure:

1. Set the Short Circuit Current Adjust on the front panel to its maximum, fully clockwise position.

2. Remove links (1)-(2) and (8)-(9). This disconnects the internal Voltage Adjust control from the circuit, and (on Metered Model) makes the Short-Circuit function on the Meter switch inoperative.

3. Connect R_S in series with the load on the negative side. Connect R_C between the load end of R_S and terminal (9).

4. Choosing the value of R_S:

   a. The value of R_S is equal to $\frac{1}{I_{out}}$; where I_{out} equals the desired regulated output current.

   b. R_C should be an adjustable 1000 Ω resistor. R_C will enable the output current to be adjusted, down from maximum as determined by $\frac{1}{R_S}$. The purpose of R_C being adjustable is to provide a fine adjustment for the output current, or to facilitate the use of more readily available values of resistors for R_S.

   c. Optimum regulation performance is obtained when R_C is set to 1000 ohms, and decreases as R_C is used to adjust to lower values of output current.

   d. The output stability in this mode of operation is dependent on the stability characteristics of R_S. It should have ample wattage rating and a low temperature coefficient.

....OUTPUT CURRENT LIMITING. - The current limiting system monitors the output current by sensing the voltage across resistors R3 (Short Circuit Current Adjust) and R219, which are in series with the output current. This voltage, in conjunction with the voltage to which R203 (Maximum Current Adjust) is set controls the drive on the Series Pass Transistor (Q1), to limit the output current at a value determined by the setting of R3. Limiting action will begin when the output current begins to exceed 75% of the short Circuit Current setting.

Because it overrides the control on the Series Pass element, when limiting begins it will degrade voltage regulation and increase ripple voltage. Since limiting begins at 75% of the Short Circuit Current, in operation the Short Circuit Current must be set to at least one-third above the intended operating current. For example: if the Supply is going to be operated at 150 ma output, the minimum Short Circuit Current setting should be 200 ma.

Maximum Current Adjust - The maximum Current Adjust control (R203) sets the maximum value of current that will flow through the Series Pass element (transistor Q1) under full overload (output short circuited). Its setting serves to limit the power that must be dissipated in the pass elements under conditions of maximum power dissipation. And it also establishes the upper limit of the range of the adjustable current limiting. The correct setting of this control is such that with the Short Circuit Current Adjust set to maximum, limiting action will begin when the output current just exceeds the rated maximum output current of the Supply. This adjustment is pre-set at the factory, and should not require adjustment except following the replacement of a transistor or Zener diode; or, when it may be required for certain applications as described under Remote Error Sensing.

Procedure:

1. Remove the unit from its outer case by removing two screws on the top and bottom panels near the front of the unit. The unit will slide out of the case to the front. R203 is a screwdriver control, the lower section of the dual control mounted on the printed circuit board.

2. Turn the Supply on, and set it to its rated maximum output voltage. Set the Short Circuit Current Adjust on the front panel to its maximum, fully clockwise position.

3. While applying a short-circuit across the output, adjust R203 to obtain a short circuit current equal to 135% of the rated maximum output current of the Supply.

a. On metered models, use the reading on the panel meter, while setting the Meter switch to Short Circuit Current position. Where the 135% value is off the meter scale, it should be possible to approximate this reading with sufficient accuracy.

b. On unmetered models, connect an ammeter (with high enough range) to terminals (3) and (7) on the terminal strip at the rear.

4. An alternate procedure for setting this adjustment, using an oscilloscope to adjust to the point where limiting just begins, is as follows:

a. Proceed as in steps 1, and 2, above.

b. Load the Supply exactly to its rated maximum output current. Connect a sensitive oscilloscope across the output terminals to observe ripple voltage.

c. Turn R203 to maximum clockwise position. While observing the ripple on the scope, turn the control R203 slowly counterclockwise until the first perceptible change in ripple is observed. This is the optimum setting.

Note: All of the above adjustments should be made with the Supply connected to line voltage of 125 V AC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
100-1261A	Transformer, Power	Kepco Magnetics 100-1261A
100-1262	Transformer, Power	Kepco Magnetics 100-1262
100-1263A	Transformer, Power	Kepco Magnetics 100-1263A
100-1274	Transformer, Power	Kepco Magnetics 100-1274
100-1275A	Transformer, Power	Kepco Magnetics 100-1275A
100-1285A	Transformer, Power	Kepco Magnetics 100-1285A
100-1292	Transformer, Power	Kepco Magnetics 100-1292
109-0037	Rectifier Assembly Full Wave, C.T.	Kepco, Inc. 109-0037
115-0005	Resistor, Fixed, Molded 47 ohm, 1w, 10%	Allen Bradley GB4701
115-0008	Resistor, Fixed, Molded 27 K ohm, 1w, 10%	Allen Bradley GB2731
115-0012	Resistor, Fixed, Molded 22 K, 1w, 10%	Allen Bradley GB2231
115-0052	Resistor, Fixed, Molded 10 ohm, 1w, 10%	Allen Bradley GB1001
115-0053	Resistor, Fixed, Molded 4.7 K ohm, 1w, 10%	Allen Bradley GB4721
115-0066	Resistor, Fixed,Molded 1.0 K ohm, 1w, 10%	Allen Bradley GB1021
115-0161	Resistor, Fixed, Precision 750 K ohm, 2w, 0.5%	Wilrite CMC-2
115-0168	Resistor, Fixed, Power, Tubular 1 K ohm, 10w, 10%	Ward Leonard 10F1000
115-0265	Resistor, Fixed, Molded 33 K ohm, 1w, 10%	Allen Bradley GB3331
115-0277	Resistor, Fixed, Power, Tubular 2.5 K ohm, 10w, 5%	Ward Leonard 10F2500
115-0371	Resistor, Fixed, Molded 220 ohm, 1/2w, 10%	Allen Bradley EB2211
115-0421	Resistor, Fixed, Power, Axial 10 ohm, 3w, 5%	Ward Leonard 3X10

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
115-0450	Resistor, Fixed, Wire Wound 0.2 ohm, 3w, 5%	Ward Leonard 7/16-Q-0.2 ohm -5%-Axiohm
115-0451	Resistor, Fixed, Molded 560 ohm, 1/2w, 10%	Allen Bradley EB5611
115-0459	Resistor, Fixed, Power, Axial 500 ohm, 3w, 5%	Ward Leonard 3X500
115-0460	Resistor, Fixed, Power, Axial L.T.C. 10 K ohm, 3w, 5%	Sprague 151E-10K
115-0467	Resistor, Fixed, Molded 4.7 K ohm, 1/2w, 10%	Allen Bradley EB4721
115-0471	Resistor, Fixed, Power, Axial L.T.C. 100 ohm, 3w, 5%	Ward Leonard 3X100
115-0480	Resistor, Fixed, Molded 820 ohm, 1/2w, 10%	Allen Bradley EB8211
115-0489	Resistor, Fixed, Molded 10 K ohm, 1/2w, 10%	Allen Bradley EB1031
115-0494	Resistor, Fixed, Power, Tubular 1.5 K ohm, 10w, 10%	Ohmite 1 3/4-D-48-F-1500
115-0499	Resistor, Fixed, Power, Axial 1 ohm, 3w, 5%	Ward Leonard 3X1
115-0502	Resistor, Fixed, Molded 10 ohm, 1/2w, 10%	Allen Bradley EB1001
115-0504	Resistor, Fixed, Power, Axial 0.5 ohm, 3w, 5%	Ward Leonard 7/16"-Q-0.5 ohm-5% Axiohm
115-0547	Resistor, Fixed, Molded 1 K, 1/2w, 10%	Allen Bradley EB1021
115-0551	Resistor, Fixed, Power, Strip 500 ohm, 20w, 5%	Ward Leonard 20S500
115-0558	Resistor, Fixed, Molded 680 ohm, 1/2w, 10%	Allen Bradley EB6811
115-0560	Resistor, Fixed, Molded 2.7 K ohm, 1/2w, 10%	Allen Bradley EB2721
115-0561	Resistor, Fixed, Molded 270 ohm, 1/2w, 10%	Allen Bradley EB2711
115-0578	Resistor, Fixed, Molded 1.5 K ohm, 1/2w, 10%	Allen Bradley EB1521
115-0608	Resistor, Fixed, Molded 1.5 K ohm, 1/2w, 10%	Allen Bradley EB4711
115-0626	Resistor, Fixed, Molded 100 ohm, 1/2w, 10%	Allen Bradley EB1011

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
115-0633	Resistor, Fixed, Power, Axial 2 ohm, 5w, 5%	Ward Leonard 5X2
115-0641	Resistor, Fixed, Power, Axial 50 ohm, 3w, 5%	Ward Leonard 3X50
115-0654	Resistor, Fixed, Molded 3.9 ohm, 1w, 10%	Allen Bradley GB39G1
115-0666	Resistor, Fixed, Molded 22 ohm, 1/2w, 10%	Allen Bradley EB2201
115-0681	Resistor, Fixed,Molded 33 ohm, 1/2w, 10%	Allen Bradley EB3301
115-0700	Resistor, Fixed, Power, Axial 5 ohm, 3w, 5%	Ward Leonard 3X5
115-0701	Resistor, Fixed, Power, Strip 2 K ohm, 20w, 5%	Ward Leonard 20S2000
115-0718	Resistor, Fixed, Molded 47 ohm, 1/2w, 10%	Allen Bradley EB4701
115-0747	Resistor, Fixed, Power, Axial 2 K ohm, 3w, 5%	Ward Leonard 3X2000
115-0773	Resistor, Fixed, Power, Axial L.T.C. 30 ohm, 3w, 5%	Ward Leonard 3X30
115-0781	Resistor, Fixed, Power, Axial 0.5 ohm, 5w, 5%	Ward Leonard 7/8" Y 0.5
115-0794	Resistor, Fixed, Power, Strip 750 ohm, 20w, 5%	Ward Leonard 20S750
115-0800	Resistor, Fixed, Power, Axial 300 ohm, 5w, 5%	Ward Leonard 5X300
115-0803	Resistor, Fixed, Power, Axial 200 ohm, 3w, 5%	Ward Leonard 3X200
115-0840	Resistor, Fixed, Molded 27 ohm, 1w, 10%	Allen Bradley GB2701
115-0871	Resistor, Fixed, Molded 680 ohm, 1/2w, 5%	Allen Bradley EB6815
115-0921	Resistor, Fixed, Molded 3.9 K ohm, 1/2w, 10%	Allen Bradley EB3921
115-0923	Resistor, Fixed, Power, Strip 1.5 K ohm, 20w, 5%	Ward Leonard 20S1500
115-0938	Resistor, Fixed, Power, Axial L.T.C. 500 ohm, 3w, 5%	Ward Leonard 3X500 L.T.C.

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
115-0961	Resistor, Fixed, Power, Axial L.T.C. 250 ohm, 3w, 5%	Ward Leonard 3X250
115-1010	Resistor,Fixed, Power, Strip 50 K ohm, 20w, 5%	Ward Leonard 20S50000
115-1062	Resistor, Fixed, Precision 1 K ohm, 1/2w, 1%	Kidco C 1/2 C
115-1093	Resistor, Variable, WW 25 ohm, 2w, 10%	Clarostat 43-25S
115-1094	Resistor, Fixed, Power, Axial 5 K ohm, 3w, 5%	Hardwick Hindle GA-747
115-1106	Resistor, Variable, Multiple, Composition 500 ohm/3.5 K ohm, 1/4 W, 30%	C.T.S. Corp. X152
115-1107	Resistor, Fixed, Precision 0.333 ohm, 3w, 1%	Tepro Electric TS-2W
115-1108	Resistor, Fixed, Precision 0.666 ohm, 3w, 1%	Kidco W3
115-1109	Resistor, Fixed, Precision 1.333 ohm, 3w, 1%	Kidco, Inc. W3
115-1110	Resistor, Variable, Ten-Turn, Carbon 7.5 K ohm, 2w, 10%	Allen-Bradley JAIG040S752UZ
115-1105	Resistor, Variable 30 K ohm, 2w, 10%	Allen Bradley JAIG040S303UZ
115-1111	Resistor, Variable, Ten Turn Carbon 15 K ohm, 2w, 10%	Allen Bradley JAIG040S153UZ
115-1112	Resistor, Variable, Ten Turn, Carbon 40 K ohm, 2w, 10%	Allen Bradley JAIG040S403UZ
115-1115	Resistor, Fixed, Power, Axial 2250 ohm, 3w, 5%	Hardwick Hindle 741
115-1121	Resistor, Fixed, Precision 39 K ohm, 1/2 w, 1%	Kidco C 1/2 C
115-1122	Resistor, Fixed, Precision 49 K ohm, 1/2 w, 1%	Kidco C 1/2 C
115-1123	Resistor, Fixed, Precision 19 K ohm, 1/2 w, 1%	Kidco C 1/2 C
115-1124	Resistor, Fixed, Precision 9 K ohm, 1/2 w, 1%	Kidco C 1/2 C
115-1125	Resistor, Fixed, Power, Strip 7.5 K ohm, 20 w, 5%	Hardwick Hindle 2BRS-56-7500 ohms
115-1126	Resistor, Fixed, Precision 8 ohm, 1/2 w, 1%	Kidco C 1/2 C

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
115-1128	Resistor, Fixed, Molded 56 K ohm, 1/2w, 10%	Allen Bradley EB5631
115-1130	Resistor, Variable, Composition 200 K ohm, 2W, 10%	Allen Bradley JAIG040S204UZ
115-1131	Resistor, Variable, Multiple, Comp. 500 ohm/3.5 K ohm, 1/4 w, 30%	C.T.S. X152
115-1132	Resistor, Fixed, Precision 2.222 ohm, 3w, 1%	Dale Electronics RS-2B
115-1135	Resistor, Fixed, Molded 47 K ohm, 2w, 10%	Allen Bradley HB4731
115-1136	Resistor, Fixed, Molded 120 ohm, 1/2 w, 10%	Allen Bradley EB1211
115-1137	Resistor, Fixed, Molded 39 K ohm, 1/2w, 10%	Allen Bradley EB 3931
115-1138	Resistor, Fixed, Precision 199 K ohm, 1/2w, 1%	Kidco C 1/2 C
115-1147	Resistor, Variable, WW 300 ohm, 2w, 10%	Clarostat 43-300
115-1153	Resistor, Variable, Ten-Turn, Carbon 2 K ohm, 2w, 10%	Clarostat Series 62JA
115-1169	Resistor, Fixed, Molded 8.2 K, 1/2w, 10%	Allen Bradley EB8221
115-1208	Resistor, Variable, Multiple, Compos. 500 ohm/1.5K ohm, 1/4w, 30%	C.T.S. X152
115-1223	Resistor, Variable, W.W. Ten-Turn 150 K ohm, 2w, 5%	Clarostat Type 62
115-1225	Resistor, Power, Axial, WW 140 K ohm, 10w, 3%	Tepro TS 10W
115-1227	Resistor, Fixed, Precision 8 ohm, 1w, 1%	Tepro TS-1W
115-1228	Resistor, Fixed, Film Type 2.2 Meg. 2w, 20%	Tepro TS-1W
115-1229	Resistor, Fixed, Film Type 20 Meg. 2w, 20%	IRC MVX-2
115-1230	Resistor, Fixed, Power, Axial L.T.C. 6 K ohm, 3w, 5%	Hardwick Hindle 9/16 GA6000 L.T.C.
115-1231	Resistor, Fixed, Power, Axial 450 ohm, 3w, 5%	Hardwick Hindle 9/16 GA450 L.T.C.

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
115-1236	Resistor, Fixed, Power, Strip 2 K ohm, 10w, 5%	Hardwick Hindle
116-0780	Resistor, Variable, Rheostat 3 ohm, 12.5w, 10%	Hardwick Hindle 0105
116-0781	Resistor, Variable, Rheostat 8 ohm, 12.5w, 10%	Hardwick Hindle 0108
116-0782	Resistor, Variable, Rheostat 15 ohm, 12.5w, 10%	Hardwick Hindle 0110
117-0039	Capacitor, Electrolytic 500 µf, 25v	Industrial 1B1131
117-0090	Capacitor, Ceramic 0.01 µf, 1000v	RMC Style "B"
117-0102	Capacitor, Electrolytic, Pigtail 60 µf, 250v	Industrial 20B296
117-0105	Capacitor, Electrolytic, Pigtail 25 µf, 25v	Industrial 1B1063
117-0117	Capacitor, Electrolytic, Pigtail 500 µf, 6v	Industrial Condenser 6RM500
117-0127	Capacitor, Electrolytic, Pigtail 50 µf, 150v	Industrial Condenser 10B936
117-0136	Capacitor, Electrolytic, Pigtail 10 µf, 50v	Industrial Condenser 1B1280
117-0140	Capacitor, Electrolytic 100 µf, 150v	Industrial 10B916RM
117-0145	Capacitor, Electrolytic, Pigtail 20 µf, 150v	Industrial 15RM20
117-0147	Capacitor, Electrolytic, Pigtail 10 µf, 150v	Industrial Condenser 10B912RM
117-0150	Capacitor, Electrolytic, Pigtail 250 µf, 50v	Industrial Condenser 1B1146
117-0176	Capacitor, Electrolytic, Pigtail 1000 µf, 10v	Industrial Condenser 1B1344RM
117-0186	Capacitor, Mylar 0.1 µf, 200v	Sprague Electric 192P10402
117-0221	Capacitor, Electrolytic, Pigtail 500 µf, 50v	Industrial Condenser 1B1163RM
117-0236	Capacitor, Mylar 0.2 µf, 200v	Hopkins Engineering P22MK

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
117-0291	Capacitor, Mylar 0.033 µf, 200v	Sprague 192P3392
117-0315	Capacitor, Mylar 0.05 µf, 200v	Good-All X6635
117-0316	Capacitor, Mylar 0.1 µf, 600v	Hopkins Engineering P16M
117-0319	Capacitor, Electrolytic, Can Type 2500 µf, 35v	Kepco 117-0319
117-0321	Capacitor, Electrolytic, Can Type 4000 µf, 25v	Kepco 117-0321
117-0323	Capacitor, Electrolytic, Can Type 500 µf, 80v	General Electric 43F1657C
117-0324	Capacitor, Electrolytic, Can Type 1000 µf, 80v	General Electric 431658C
117-0332	Capacitor, Mylar 0.5 µf, 300v	Good All X663F
117-0333	Capacitor, Electrolytic, Can Type 150 µf, 450v	Kepco 117-0333
117-0338	Capacitor, Mylar 0.22 µf, 400v	Kepco 117-0338
117-0345	Capacitor, Electrolytic, Pigtail 2500 µf, 10v	Kepco 117-0345
117-0350	Capacitor, Electrolytic, Can Type 50 µf, 350v	General Electric
117-0352	Capacitor, Electrolytic, Pigtail 200 µf, 15v	Kepco 117-0352
117-0353	Capacitor, Mylar 0.01 µf, 200v	Kepco 117-0353
117-0359	Capacitor, Paper, Can Type 0.05, 0.05 µf, 3000v	General Electric
117-0360	Capacitor, Paper, Can Type 0.5,0.5 µf, 3000 v	General Electric
119-0016	Transistor, PNP Field Replacement 2N174	Delco 119-0016
119-0020	Transistor, PNP 2N398A	RCA 2N398A
119-0022	Transistor, PNP Field Replacement 2N1707	Tung-Sol 119-0022
119-0024	Transistor, NPN	General Transistor 119-0024

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
119-0034	Transistor, PNP 2N1172	Delco 2N1172
119-0035	Transistor, PNP	Motorola 119-0035
119-0049	Transistor, PNP 2N669	Delco 2N669
121-0012	Zener Reference Diode 12v, 50 MA	Hoffman 1N1773
121-0013	Zener Reference Diode 6v, 10 MA	Hoffman RS 6
121-0028	Zener Reference Diode 6.5v, 10MA	Transitron SV-125
122-0007	Germanium Rectifier, Pigtail 150 MA, 100 PIV	General Electric 1N91
124-0028	Silicon Rectifier, Pigtail 500 MA, 380 PIV	Automatic PT-5
124-0084	Silicon Rectifier, Pigtail 500 MA, 100 PIV	Transitron SL-91
124-0094	Silicon Rectifier, Pigtail 200 MA, 1000 PIV	Columbus CEC-1000
124-0114	Silicon Rectifier, Reverse Pol. 15A, 200 PRV	Motorola MR324R
124-0133	Silicon Rectifier, Pigtail 500 MA, 100 PIV	Columbus CFC-105
124-0137	Silicon Rectifier, Pigtail 50 MA, 2800 PIV	Solitron Type HV28A
126-0092	Vacuum Tube Type 7581	General Electric 7581
126-0095	Vacuum Tube Type 7534	Amperex 7534
127-0150	Switch, Rotary 4 Pole, 3 Pos.	C.T.S. BSR-212-8776-1
127-0152	Switch, Toggle, SPST 3A, 125v	Carling AA232-71
127-0154	Switch, Thermostat, N.C.	Stevens 8506
127-0168	Switch, Rotary 2 Sect, 10 Pos.	Centralab

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

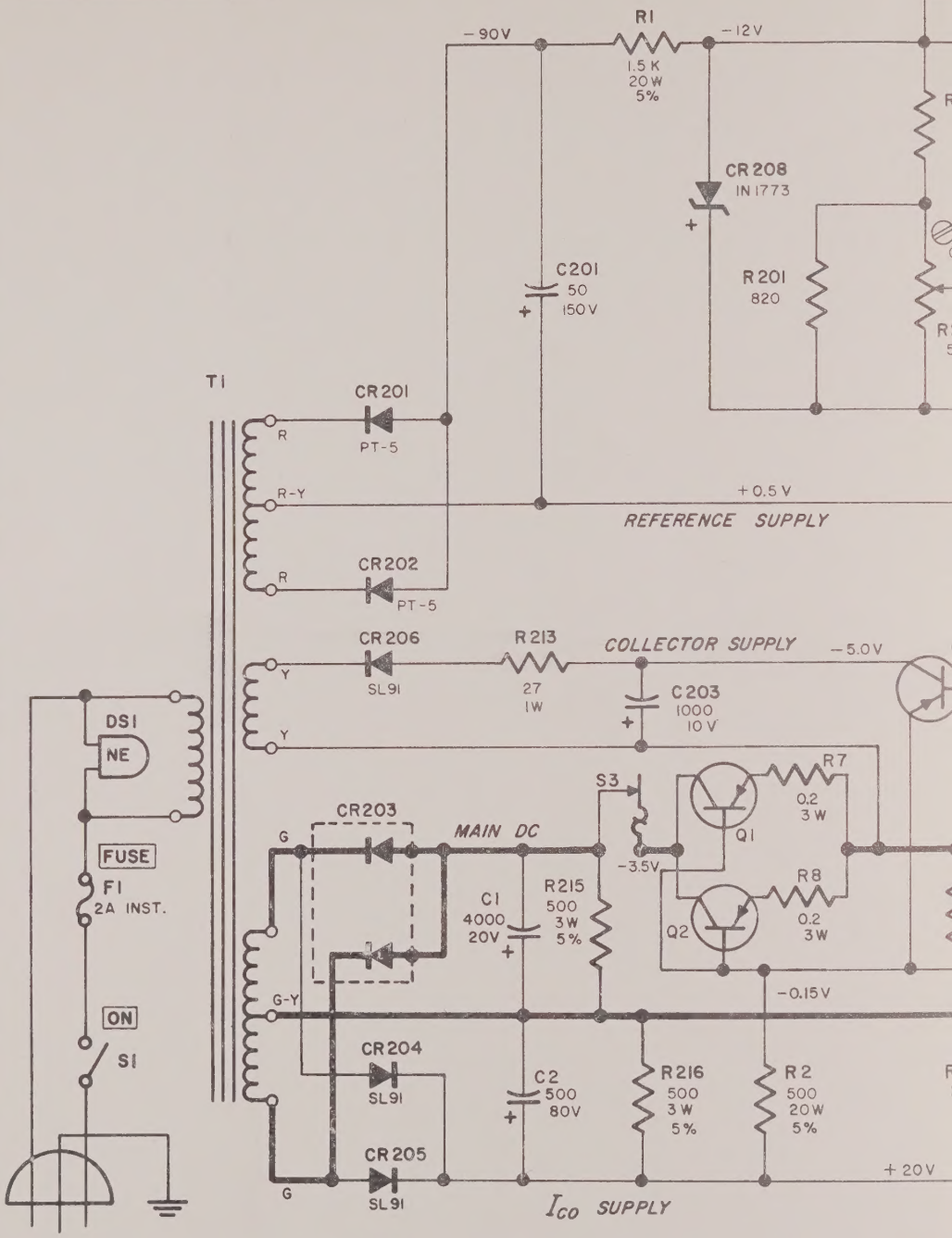
PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

KEPCO PART NO.	DESCRIPTION	MFRS. NAME & PART NO. (See Note)
135-0214	Panel Meter Scale: 0-40v/0-450 MA	General Electric DW91A419AN2
135-0215	Panel Meter Scale 0-50v/0-750 MA	General Electric DW91A420AN2
135-0216	Panel Meter Scale: 0-20v/0-1.5 A	General Electric DW91A421AN2
135-0217	Panel Meter Scale: 0-10v/0-3A	General Electric DW91A422AN2
135-0222	Panel Meter Scale: 0-1500v	General Electric
135-0223	Panel Meter Scale: 0-250v/0-150 MA	General Electric 8DW91V275AA2
135-0227	Panel Meter Scale:0-2v/0-1.5A	General Electric DW91
141-0012	Fuse; Instantaneous 2A, 250v	Buss AGC-2
141-0015	Fuse, Instantaneous 1A, 250v	Buss AGC-1
152-0069	Pilot Light Ass'y, Neon, Red Replace Ass'y	Omni-Glow 1050A17

REPLACEMENT PARTS MAY BE ORDERED FROM KEPCO, INC. ORDERS SHOULD INCLUDE KEPCO PART NUMBER AND DESCRIPTION.

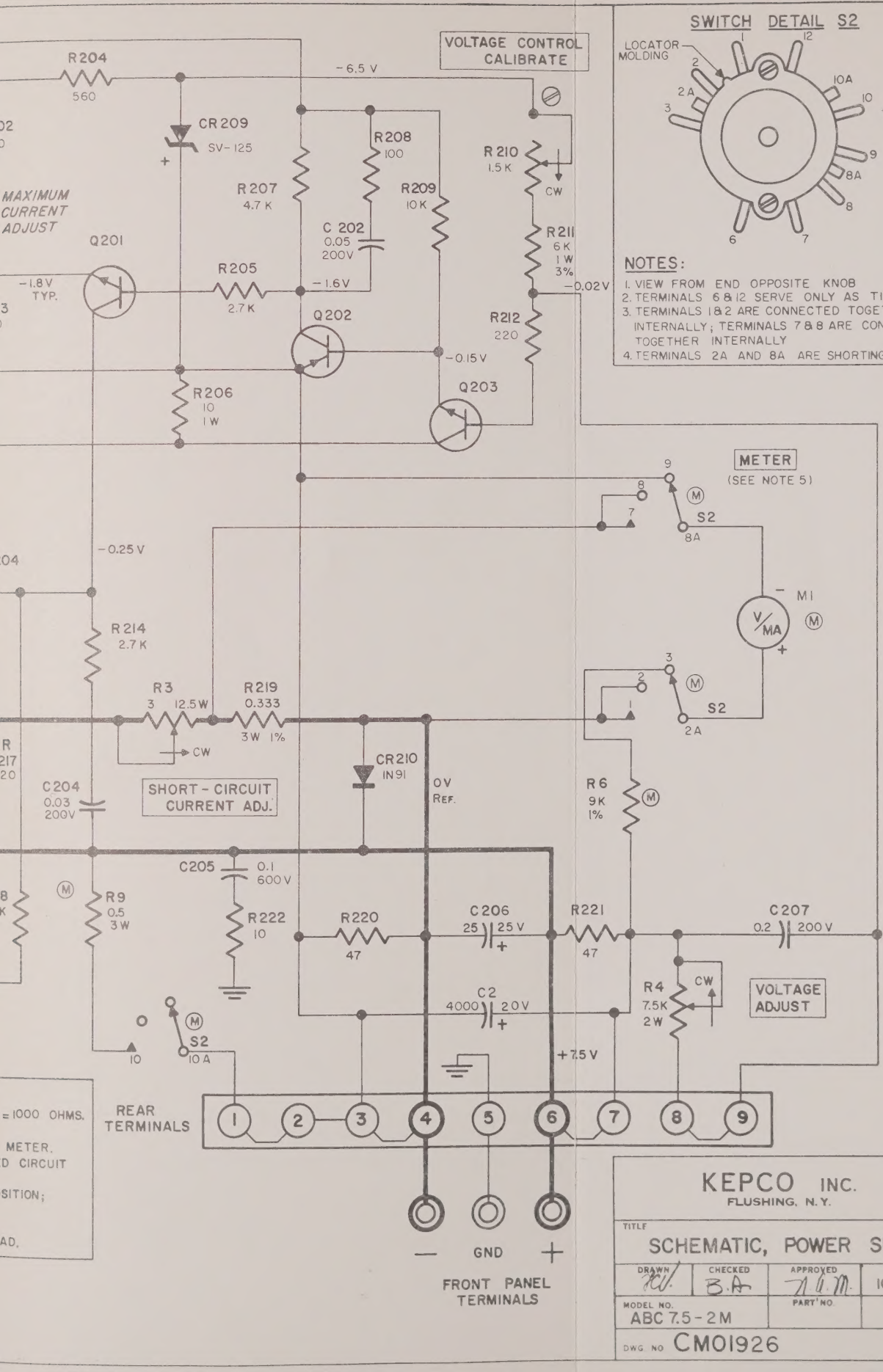
PLEASE NOTE: THE MANUFACTURER'S NAME AND PART NUMBER LISTED FOR EACH ITEM ON REPLACEMENT PARTS LISTS, REPRESENTS AT LEAST ONE SOURCE FOR THAT ITEM AND IS LISTED SOLELY FOR THE CONVENIENCE OF KEPCO EQUIPMENT OWNERS IN OBTAINING REPLACEMENT PARTS LOCALLY. WE RESERVE THE RIGHT TO USE EQUIVALENT ITEMS FROM ALTERNATE SOURCES. KEPCO, INC.

C M01926

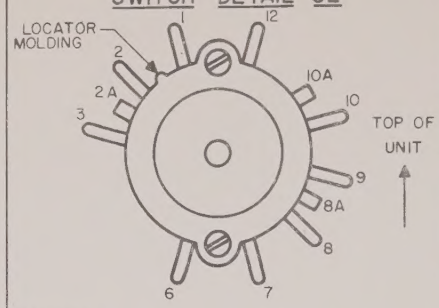


NOTES:

1) ALL RESISTORS ARE 10%, ½ W, EXCEPT AS NOTED. VALUE GIVEN IN OHMS ALL CAPACITOR VALUES GIVEN IN MICROFARADS.
2) (M) DENOTES COMPONENT OR CONNECTION INCLUDED ONLY IN MODELS WIT
3) ITEMS WITH REFERENCE DESIGNATION 200-299 ARE MOUNTED ON PRIN BOARD.
4) METER SWITCH S2 SHOWN IN VOLTAGE POSITION; CENTER IS CURRENT THIRD POSITION IS MOMENTARY SHORT-CIRCUIT POSITION.
5) VOLTAGES ARE DC, TYPICAL VALUE, MEASURED TO (-) DC OUTPUT TERMIN WITH 20 K/V METER; AC LINE 115 V; OUTPUT SET TO MAXIMUN VDC, NO



SWITCH DETAIL S2



NOTES:

1. VIEW FROM END OPPOSITE KNOB
2. TERMINALS 6 & 12 SERVE ONLY AS TIE-POINTS
3. TERMINALS 1 & 2 ARE CONNECTED TOGETHER INTERNALLY; TERMINALS 7 & 8 ARE CONNECTED TOGETHER INTERNALLY
4. TERMINALS 2A AND 8A ARE SHORTING TYPE

= 1000 OHMS.
METER.
D CIRCUIT
SITION;
AD.

KEPCO PART NO
MODEL ABC 7.5-2
SEE KEPCO PARTS L
FOR COMPLETE DESCR

C201	117-0127
C202	117-0315
C203	117-0176
C204	117-0291
C205	117-0316
C206	117-0105
C207	117-0236
C208	117-0039
C1	117-0321
C2	117-0321
CR201	124-0028
CR202	124-0028
CR203	109-0037
CR204	124-0084
CR205	124-0084
CR206	NOT USED
CR207	124-0084
CR208	121-0012
CR209	121-0028
CR210	122-0007
DS1	152-0069
F1	141-0012
M1	135-0217
Q1	119-0035
Q2	119-0035
Q201	119-0024
Q202	119-0022
Q203	119-0024
Q204	119-0034
R1	115-0923
R2	115-0551
R3	116-0780
R4	115-1110
R5	NOT USED
R6	115-1124
R7,R8	115-0450
R9	115-0781
R201	115-0480
R202	115-0480
R203	115-1208
R204	115-0451
R205	115-0560
R206	115-0052
R207	115-0467
R208	115-0626
R209	115-0489
R210	115-1208
R211	115-1155
R212	115-0371
R213	NOT USED
R214	115-0560
R215	115-0459
R216	115-0459
R217	115-1136
R218	115-0008
R219	115-1107
R220	115-0718
R221	115-0718
R222	115-0502
S1	127-0152
S2	127-0167
S3	NOT USE
T1	100-126

KEPCO INC.
FLUSHING, N.Y.

TITLE: SCHEMATIC, POWER SUPPLY

DRAWN	CHECKED	APPROVED	DATE
JCW	B.A	A.G.M.	10-11-62

MODEL NO.	PART NO.	SCALE
ABC 7.5-2M		—

DWG. NO CM01926

kepco Inc.®

131-38 SANFORD AVENUE • FLUSHING 52, N. Y. • Area Code 212 IN 1-7000 • TWX # NY 4-5196

146-0045 - 1/62 -12M